

REMARKS

Claims 1-19 and 21-35 are pending in this application, wherein claims 1-17 and 25-27 were withdrawn from consideration in a Response to Restriction Requirement filed January 6, 2006. In an Office Action mailed August 29, 2006 ("OA"), the Examiner allowed claims 18 and 21-24, rejected claims 28, 29, and 33-35, and objected to claims 30-32 as having allowable subject matter. In this response, Applicants amend claims 28 and 35. Applicants respectfully traverse the rejections and request reconsideration based on the following remarks.

In addition, Applicants do not necessarily agree with or acquiesce in the Examiner's characterization of the claims or the prior art, even if those characterizations are not addressed herein.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 18 and 21-24 are allowable over the cited prior art.

The Examiner object to claims 30-32 as being dependent upon rejected independent claim 28, but would be allowable if rewritten in independent form to include all of the limitations of claim 28 and any intervening claims. Applicants thank the Examiner for indicating allowable subject matter. But, as stated below, Applicants respectfully submit that independent claim 28 is allowable over the cited prior art.

Claim Rejections - 35 U.S.C. § 103(a)

To establish a prima facie case of obviousness, MPEP § 2142 requires that (1) the prior art reference must teach or suggest all claimed elements, (2) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of

ordinary skill in the art, to modify the reference, and (3) there must be a reasonable expectation of success.

Claims 28, 29, and 35

The Examiner rejected claims 28, 29, and 35 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,977,504 (“Wright”) in view of U.S. Patent No. 6,617,856 (“Royle”).

Amended claim 28 is directed to a method comprising “generating a series of electromagnetic pulses, wherein these pulses can excite multiple types of markers and each type of marker represents a different type of utility line; receiving signals as a function of time between application of the pulses, wherein the signals are from one or more markers identifying at least one utility line; averaging the signals over a predetermined number of pulses to obtain an average decay signal; initially determining a frequency, field strength, and phase for responses from the one or more markers; accurately determining the frequency, field strength, and phase by successive elimination of a contribution from each of the one or more markers; and refining the electromagnetic pulses in order to provide resonant frequencies for each of the one or more markers, wherein the accurate determining and the refining assists in the capability to distinguish a particular type of one or more markers from the different types of markers” (emphasis added).

Wright is directed towards a device that can identify location within an object, such as the human body, by using implantable markers. *Id.* at column 1, lines 16-18 (1:16-18). While providing a receiver capable of detecting multiple markers, Wright appears to be limited to determining the position of only a single type of marker. *Id.* at 25:9-17. Hence, Wright’s medical system 100 cannot distinguish between multiple types of markers where each type of marker represents a different type of utility line.

Royle fails to overcome Wright's deficiencies. Royle provides a marker locator that locates a marker identifying a utility line. But this marker locator does not distinguish between the different types of markers as provided in the Applicants' claimed method. As noted by Applicants' specification, it can be difficult to identify, to determine, and to distinguish a particular marker if multiple markers of differing types and depths are present. Applicants' specification at page 3, paragraph 5.

Hence, Applicants respectfully submit that Wright in view of Royle fail to disclose "generating a series of electromagnetic pulses, wherein these pulses can excite multiple types of markers and each type of marker represents a different type of utility line; receiving signals as a function of time between application of the pulses, wherein the signals are from one or more markers identifying at least one utility line; averaging the signals over a predetermined number of pulses to obtain an average decay signal; initially determining a frequency, field strength, and phase for responses from the one or more markers; accurately determining the frequency, field strength, and phase by successive elimination of a contribution from each of the one or more markers; and refining the electromagnetic pulses in order to provide resonant frequencies for each of the one or more markers, wherein the accurate determining and the refining assists in the capability to distinguish a particular type of one or more markers from the different types of markers." For at least these reasons, Applicants respectfully submit that amended claim 28 is patentable over the cited prior art.

Claim 29 depends on claim 28 and is patentable for at least the same reasons as claim 28.

Amended claim 35 is directed to a marker locator including "an antenna that provides a series of electromagnetic pulses and receives signals as a function of time between application of the pulses, wherein these pulses can excite multiple types of markers and each type of marker

represents a different type of utility line and the signals are from one or more markers identifying at least one utility line; and a processor that averages the signals over a predetermined number of pulses to obtain an average decay signal, initially determines a frequency, field strength, and phase for responses from the one or more markers, and accurately determines the frequency, field strength, and phase by successive elimination of a contribution from each of the one or more markers, wherein the accurate determining assists in distinguishing a particular type of marker from the different types of markers” (emphasis added). Claim 35 includes amended language similar to the language amended into claim 28. Because of this similar language, Applicants respectfully submit that claim 35 is patentable over Wright and Royle for at least the same reasons provided in the analysis above. Therefore, Applicants respectfully submit that claim 35 is patentable over the cited prior art.

Claims 28, 29, and 33-35

The Examiner rejected claims 28, 29, 33, 34, and 35 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,362,737 (“Rodgers”) in view of U.S. Patent No. 5,512,834 (“McEwan”) and Royle.

Rodgers provides an interrogator used for tracking a tagged object, animal, or person, wherein the interrogator does not distinguish between different types of tags. McEwan discloses an electromagnetic detector that has the ability to locate an object hidden behind a separator or a cavity within a solid object. McEwan fails to disclose distinguishing between different types of objects. Further, as noted by the Examiner, Rodgers and McEwan fail to “explicitly teach [a] marker localization method to determine utility locations.” Office Action at page 7.

As stated in the analysis above, Royle provides a marker locator, but fails to teach that the marker locator can distinguish between the different types of markers as provided in

Applicants' claimed invention. For at least these reasons, Applicants respectfully submit that the combination of Rodgers, McEwan, and Royle fail to disclose the claimed inventions provided in amended claims 28 and 35. Therefore, Applicants respectfully submit that claims 28 and 35 are patentable over the cited prior art.

Claims 29, 33, and 34 depend on claim 28 and are patentable over the prior art for at least the same reasons as claim 28.

Conclusion

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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